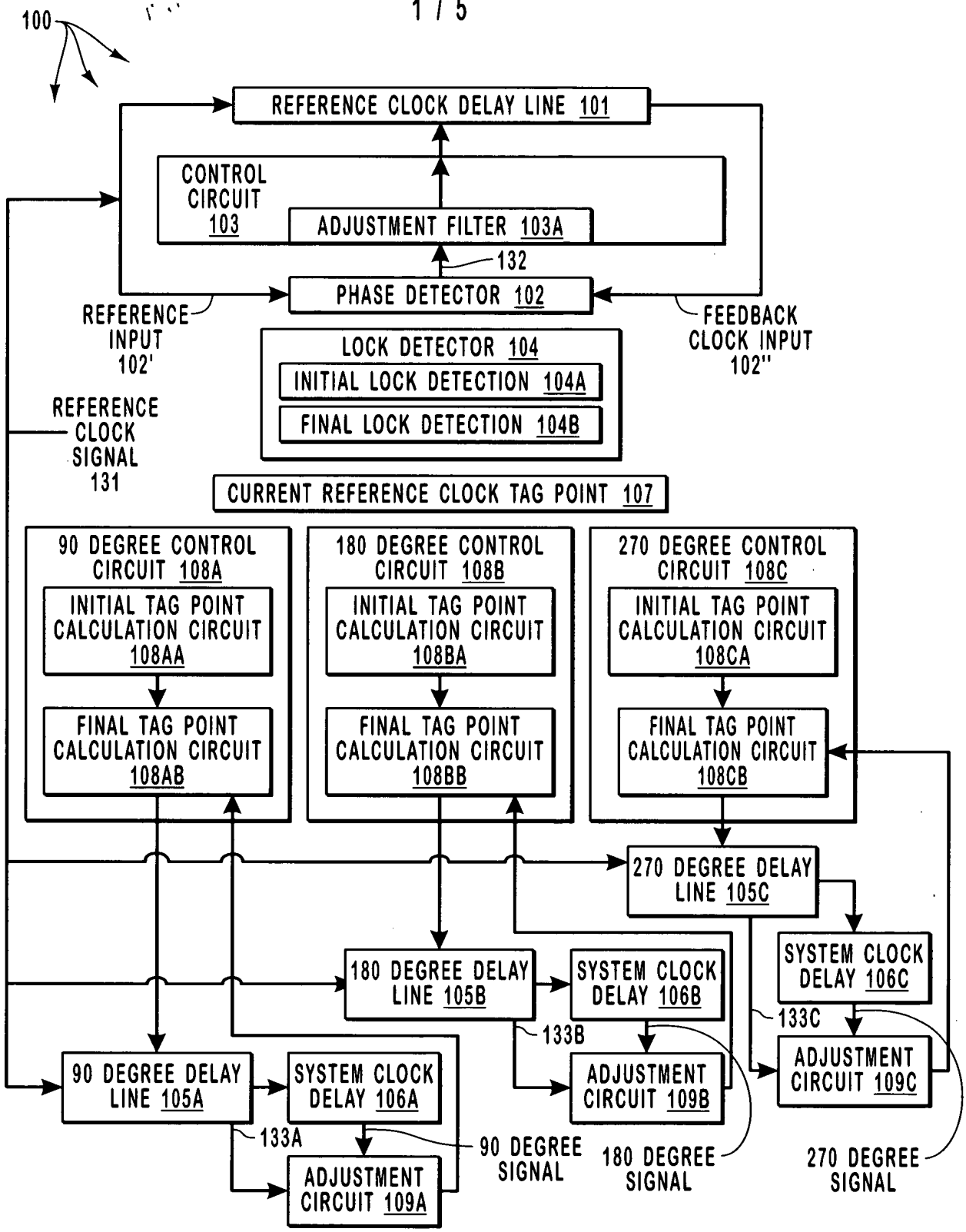
100
REFERENCE CLOCK DELAY LINE 101
CONTROL CIRCUIT 103
ADJUSTMENT FILTER 103A
132
PHASE DETECTOR 102
REFERENCE INPUT 102'
FEEDBACK CLOCK INPUT 102''
LOCK DETECTOR 104
INITIAL LOCK DETECTION 104A
FINAL LOCK DETECTION 104B
REFERENCE CLOCK SIGNAL 131
CURRENT REFERENCE CLOCK TAG POINT 107
90 DEGREE CONTROL CIRCUIT 108A
INITIAL TAG POINT CALCULATION CIRCUIT 108AA
FINAL TAG POINT CALCULATION CIRCUIT 108AB
180 DEGREE CONTROL CIRCUIT 108B
INITIAL TAG POINT CALCULATION CIRCUIT 108BA
FINAL TAG POINT CALCULATION CIRCUIT 108BB
270 DEGREE CONTROL CIRCUIT 108C
INITIAL TAG POINT CALCULATION CIRCUIT 108CA
FINAL TAG POINT CALCULATION CIRCUIT 108CB
270 DEGREE DELAY LINE 105C
180 DEGREE DELAY LINE 105B
SYSTEM CLOCK DELAY 106B
SYSTEM CLOCK DELAY 106C
133C
133B
90 DEGREE DELAY LINE 105A
SYSTEM CLOCK DELAY 106A
ADJUSTMENT CIRCUIT 109B
ADJUSTMENT CIRCUIT 109C
133A
90 DEGREE SIGNAL
180 DEGREE SIGNAL
270 DEGREE SIGNAL
ADJUSTMENT CIRCUIT 109A

FIG. 1

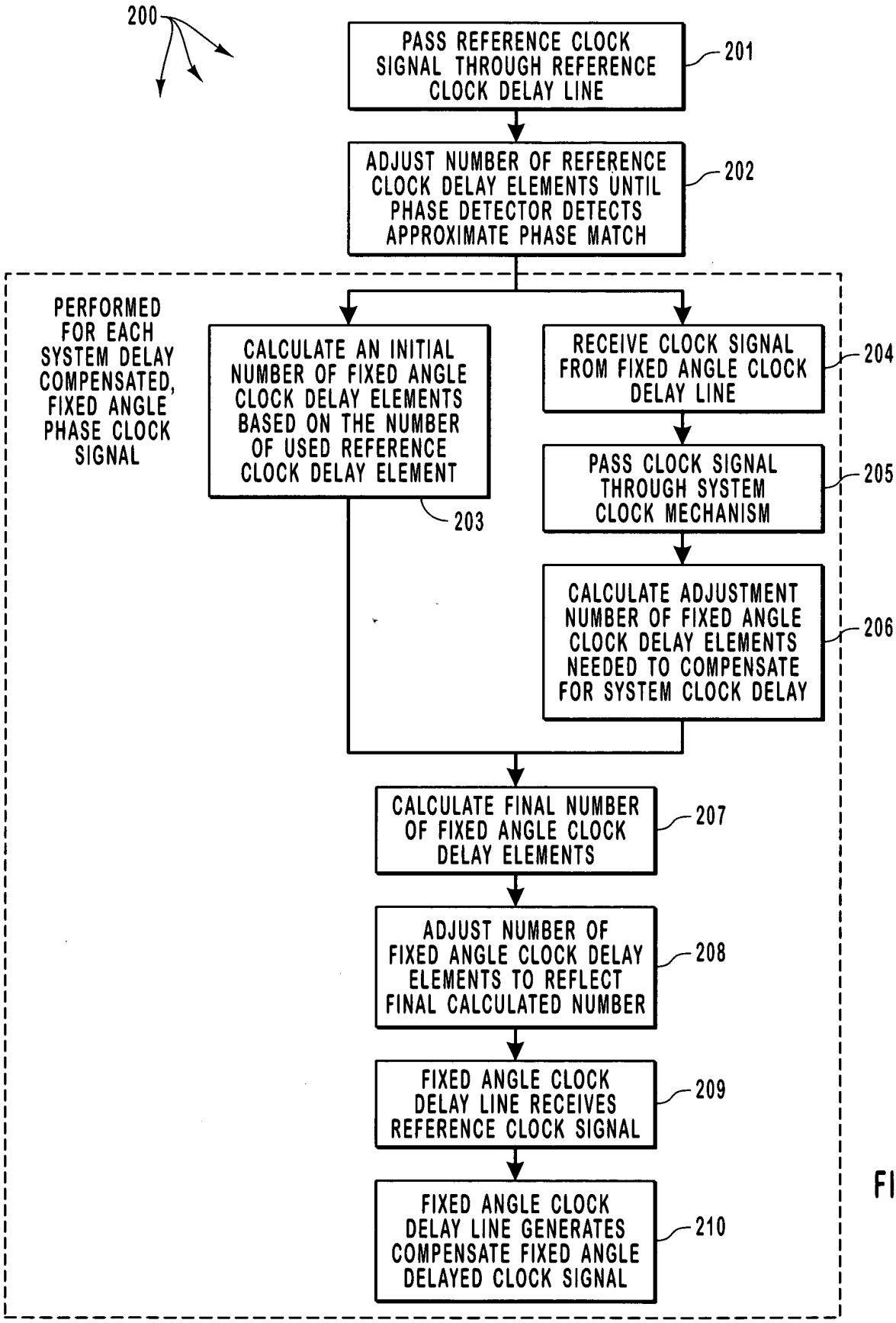
200
PASS REFERENCE CLOCK SIGNAL THROUGH REFERENCE CLOCK DELAY LINE
201
ADJUST NUMBER OF REFERENCE CLOCK DELAY ELEMENTS UNTIL PHASE DETECTOR DETECTS APPROXIMATE PHASE MATCH
202
PERFORMED FOR EACH SYSTEM DELAY COMPENSATED, FIXED ANGLE PHASE CLOCK SIGNAL
CALCULATE AN INITIAL NUMBER OF FIXED ANGLE CLOCK DELAY ELEMENTS BASED ON THE NUMBER OF USED REFERENCE CLOCK DELAY ELEMENT
203
RECEIVE CLOCK SIGNAL FROM FIXED ANGLE CLOCK DELAY LINE
204
PASS CLOCK SIGNAL THROUGH SYSTEM CLOCK MECHANISM
205
CALCULATE ADJUSTMENT NUMBER OF FIXED ANGLE CLOCK DELAY ELEMENTS NEEDED TO COMPENSATE FOR SYSTEM CLOCK DELAY
206
CALCULATE FINAL NUMBER OF FIXED ANGLE CLOCK DELAY ELEMENTS
207
ADJUST NUMBER OF FIXED ANGLE CLOCK DELAY ELEMENTS TO REFLECT FINAL CALCULATED NUMBER
208
FIXED ANGLE CLOCK DELAY LINE RECEIVES REFERENCE CLOCK SIGNAL
209
FIXED ANGLE CLOCK DELAY LINE GENERATES COMPENSATE FIXED ANGLE DELAYED CLOCK SIGNAL
210

FIG. 2

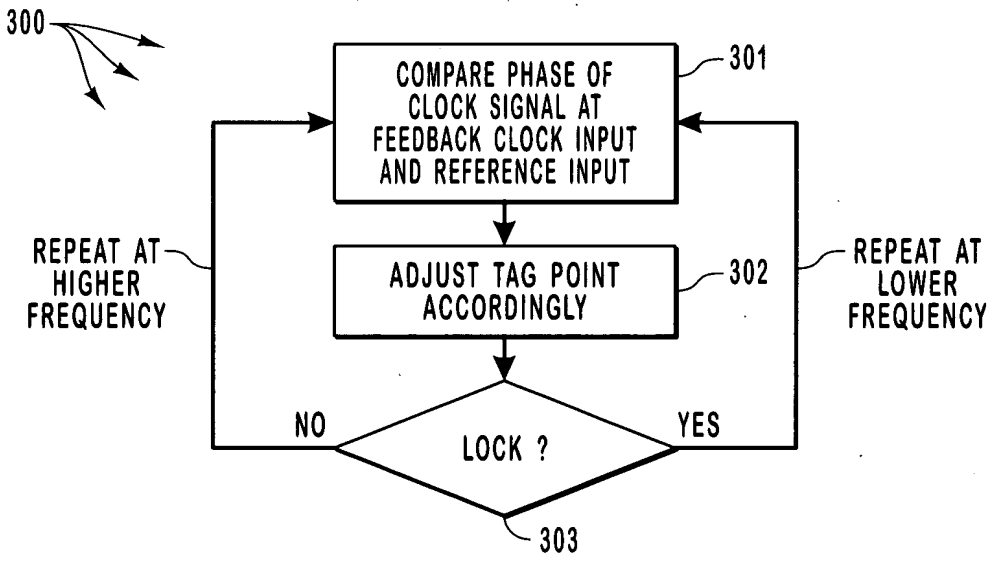
300
COMPARE PHASE OF CLOCK SIGNAL AT FEEDBACK CLOCK INPUT AND REFERENCE INPUT
301
ADJUST TAG POINT ACCORDINGLY
302
LOCK ?
303
NO
YES
REPEAT AT HIGHER FREQUENCY
REPEAT AT LOWER FREQUENCY

FIG. 3

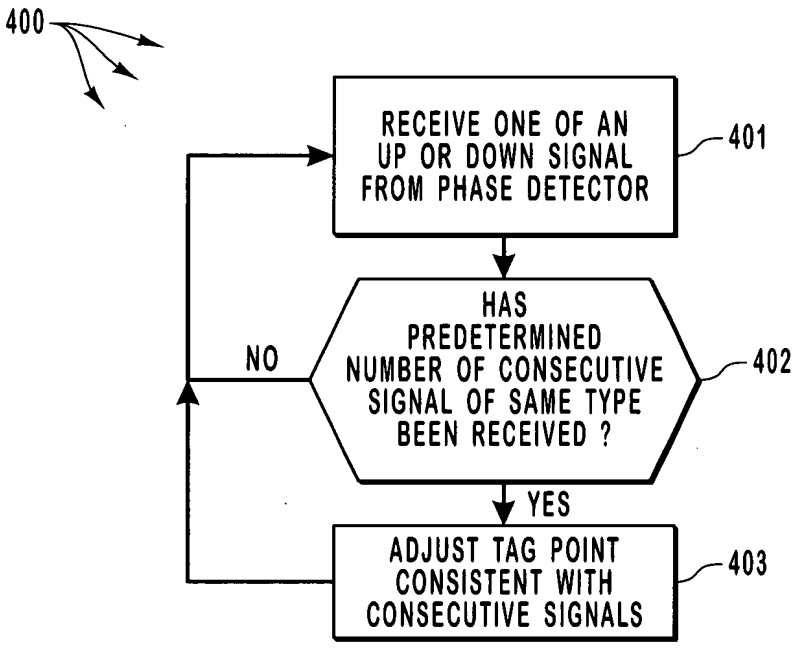
400
RECEIVE ONE OF AN UP OR DOWN SIGNAL FROM PHASE DETECTOR
401
HAS PREDETERMINED NUMBER OF CONSECUTIVE SIGNAL OF SAME TYPE BEEN RECEIVED ?
402
NO
YES
ADJUST TAG POINT CONSISTENT WITH CONSECUTIVE SIGNALS
403

FIG. 4

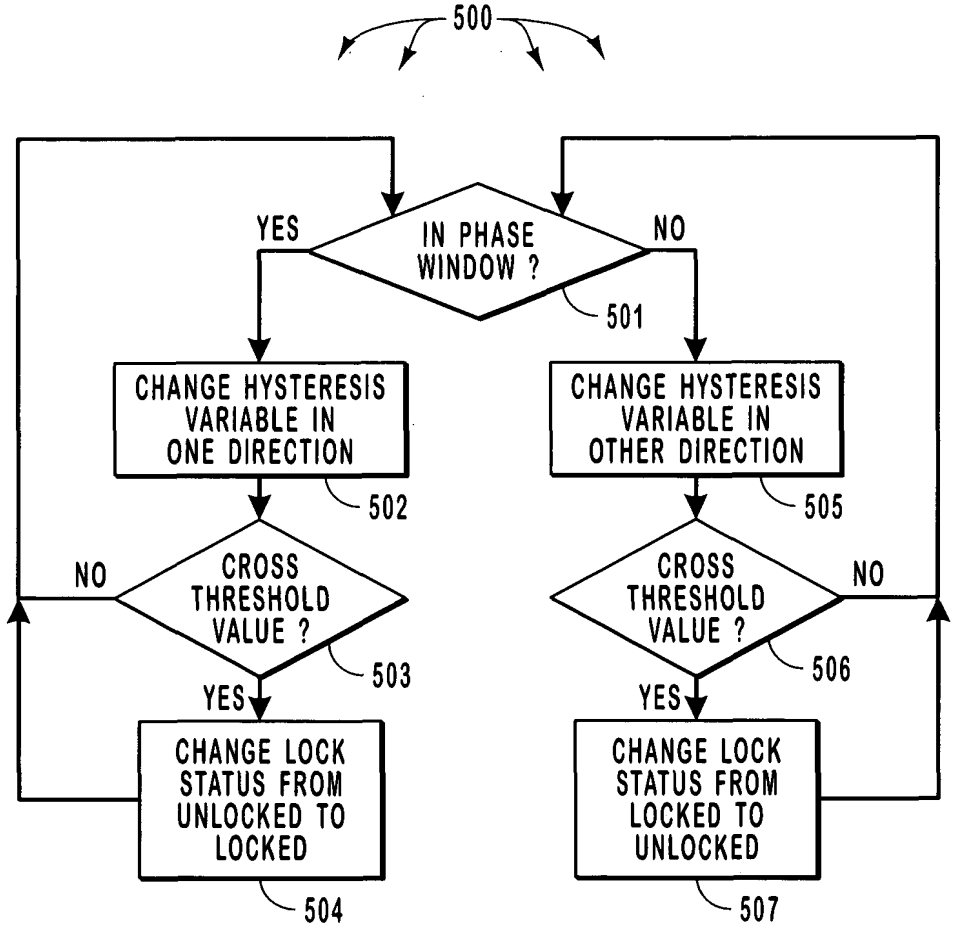
500
IN PHASE WINDOW ?
501
YES
NO
CHANGE HYSTERESIS VARIABLE IN ONE DIRECTION
502
CHANGE HYSTERESIS VARIABLE IN OTHER DIRECTION
505
CROSS THRESHOLD VALUE ?
503
NO
YES
CROSS THRESHOLD VALUE ?
506
NO
YES
CHANGE LOCK STATUS FROM UNLOCKED TO LOCKED
504
CHANGE LOCK STATUS FROM LOCKED TO UNLOCKED
507

FIG. 5

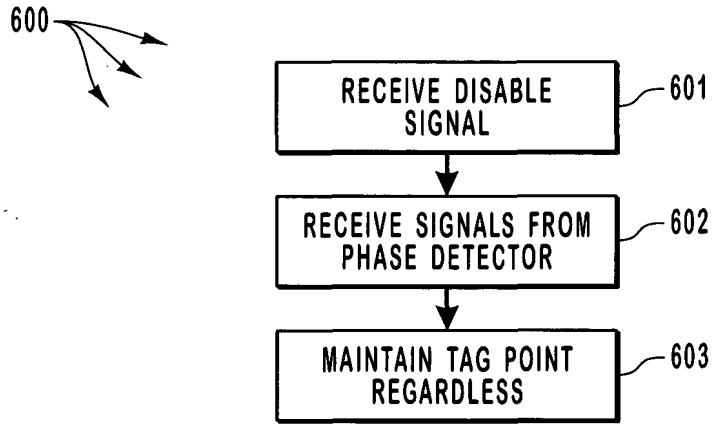
600
RECEIVE DISABLE SIGNAL
601
RECEIVE SIGNALS FROM PHASE DETECTOR
602
MAINTAIN TAG POINT REGARDLESS
603

FIG. 6

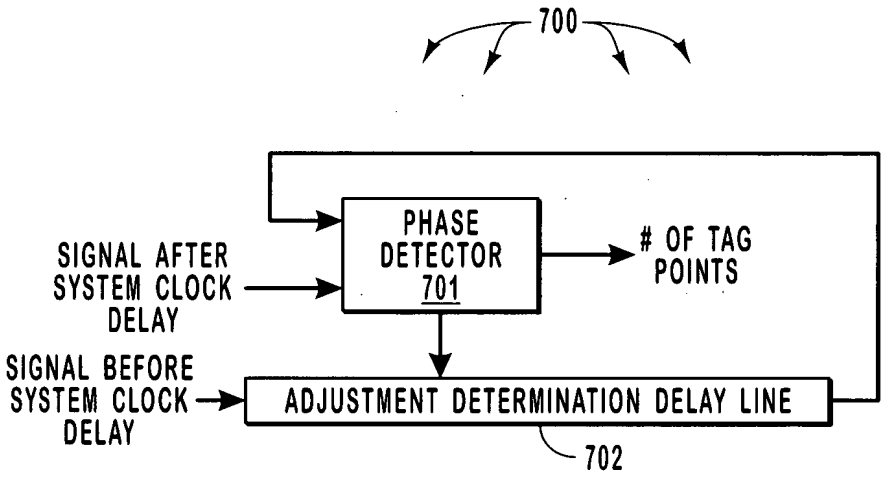
700
PHASE DETECTOR 701
SIGNAL AFTER SYSTEM CLOCK DELAY
SIGNAL BEFORE SYSTEM CLOCK DELAY
OF TAG POINTS
ADJUSTMENT DETERMINATION DELAY LINE
702

FIG. 7